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10 CFR 50.90

RS-05-058

May 24, 2005

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: Request for License Amendment Related to Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program"

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) is requesting an amendment to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2, respectively.

The proposed one time change would revise TS 5.5.9, "Steam Generator (SG) Tube Surveillance Program," to incorporate changes in the SG inspection scope for Byron Station, Unit 2, during Refueling Outage 12 and the subsequent operating cycle. The proposed changes are applicable to Unit 2 only for inspections during Refueling Outage 12 and for the subsequent operating cycle. The proposed changes modify the inspection requirements for portions of SG tubes within the hot leg tubesheet region of the SGs. The license for Byron Station, Unit 1, is affected only due to the fact that Unit 1 and Unit 2 use common Technical Specifications.

The attached amendment request is subdivided as shown below.

Attachment 1 provides an evaluation of the proposed changes.

Attachment 2 includes the marked-up TS pages with the proposed changes indicated for Byron Station.

Attachment 3 includes the associated typed TS pages with the proposed changes incorporated for Byron Station.

Attachment 4 provides a List of Commitments resulting from this submittal.

Attachment 5 provides an application for withholding, affidavit, proprietary information notice, and copyright notice for information proprietary to Westinghouse Electric Company, LLC.

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Attachment 6 provides a non-proprietary version of Westinghouse Electric Company LTR-CDME-05-32-NP, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 & Braidwood 2," Revision 1, dated May 2005.

Attachment 7 provides a proprietary version of Westinghouse Electric Company LTR-CDME-05-32-P, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 & Braidwood 2," Revision 1, dated May 2005.

Attachment 7 contains information proprietary to Westinghouse Electric Company LLC; it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.390.

EGC requests that this proposed change be approved by September 1, 2005, to support the preparations for Refueling Outage 12.

The proposed amendment has been reviewed by the Byron Station Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

EGC is notifying the State of Illinois of this application for a change to the TS by sending a copy of this letter and its attachments to the designated State Official.

If you have any questions about this letter, please contact C. W. Szabo at (630) 657-2821.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 5/24/05

Keith R. Jury
Director – Licensing and Regulatory Affairs

Attachment 1: Evaluation of Proposed Changes
Attachment 2: Markup of Proposed Technical Specifications Page Changes for Byron Station
Attachment 3: Typed Pages for Technical Specification Changes for Byron Station
Attachment 4: List of Commitments
Attachment 5: Westinghouse Letter, CAW-05-1992, Application for Withholding and Affidavit, Proprietary Information Notice, and Copyright Notice
Attachment 6: Westinghouse Electric Company LTR-CDME-05-32-NP, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 & Braidwood 2," Revision 1, dated May 2005 - Non-Proprietary Version
Attachment 7: Westinghouse Electric Company LTR-CDME-05-32-P, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 & Braidwood 2," Revision 1, dated May 2005 – Proprietary Version

ATTACHMENT 1
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ATTACHMENT 1
Evaluation of Proposed Changes

1.0 DESCRIPTION

The proposed one time change would revise Technical Specification (TS) 5.5.9, "Steam Generator (SG) Tube Surveillance Program," to incorporate changes in the SG inspection scope for Byron Station, Unit 2, during Refueling Outage 12 and the subsequent operating cycle. The proposed changes are applicable to Unit 2 only for inspections during Refueling Outage 12 and for the subsequent operating cycle. The proposed changes modify the inspection requirements for portions of SG tubes within the hot leg tubesheet region of the SGs. The license for Byron Station, Unit 1, is affected only due to the fact that Unit 1 and Unit 2 use common Technical Specifications.

The NRC approved a similar change for Braidwood Station, Unit 2, by letter from NRC to C. M. Crane (Exelon Generating Company, LLC), "Braidwood Station, Units 1 and 2 – Issuance of Exigent Amendments RE: Revision of Scope of Steam Generator Inspections for Unit 2 Refueling Outage 11 – (TAC Nos. MC6686 and MC6687)," dated April 25, 2005.

2.0 PROPOSED CHANGE

Proposed changes to TS 5.5.9 are summarized below.

TS 5.5.9.b, "SG Tube Sample Selection and Inspection"

A new requirement has been added (i.e., TS 5.5.9.b.5) to state:

> "For Unit 2 during Refueling Outage 12, a 20% minimum sample of all inservice tubes from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be inspected by rotating probe. This sample shall include a 20% minimum sample of the total population of bulges and overexpansions within the SG from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet."

TS 5.5.9.e.6, "Plugging or Repair Limit"

Two new paragraphs have been added to state:

> "For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, this definition does not apply to degradation identified in the portion of the tube below 17 inches from the top of the hot leg tubesheet. Degradation found in the portion of the tube below 17 inches from the top of the hot leg tubesheet does not require plugging or repair.
>
> For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, degradation identified in the portion of the tube from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be plugged or repaired upon detection."

TS 5.5.9.e.8, "Tube Inspection"

A new paragraph has been added to state:

> "For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, the portion of the tube below 17 inches from the top of the hot leg tubesheet is excluded."

TS 5.5.9.e, "Acceptance Criteria"

TS 5.5.9.e.12 has been added to define "Bulge" and "Overexpansion:"

> "For Unit 2 during Refueling Outage 12 and the subsequent operating cycle:
>
> Bulge refers to a tube diameter deviation within the tubesheet of 18 volts or greater as measured by bobbin coil probe; and
>
> Overexpansion refers to a tube diameter deviation within the tubesheet of 1.5 mils or greater as measured by bobbin coil probe."

The above proposed changes are applicable only to Byron Station, Unit 2, and are only applicable for SG tube inspections conducted during Refueling Outage 12 and the subsequent operating cycle. The license for Byron Station, Unit 1, is affected only due to the fact that Byron Station, Units 1 and 2, use common TS.

3.0 BACKGROUND

Byron Station, Unit 2, contains four Westinghouse Model D5 recirculating, pre-heater type SGs. Each SG contains 4,570 thermally treated Alloy-600 U-tubes that have an outer diameter of 0.750 inch with a 0.043 inch nominal wall thickness. The support plates are 1.125 inch thick stainless steel and have quatrefoil broached holes. The tubing within the tubesheet is hydraulically expanded throughout the full thickness of the tubesheet. The tubesheet is approximately 21 inches thick. The low row U-bend region, up through row nine, received additional thermal stress relief following tube bending. The unit operates on approximately 18-month fuel cycles.

The most recent Byron Station, Unit 2, SG tube inspection was performed in the March 2004 refueling outage. The SG inspection scope was governed by: Byron Station TS 5.5.9; the Electric Power Research Institute (EPRI) Pressurized Water Reactor (PWR) SG Examination Guidelines; regulatory documents and commitments; Exelon ER-AP-420 procedure series (Steam Generator Management Program Activities); and the results of a Byron Station, Unit 2, degradation assessment. The inspection techniques and equipment were capable of reliably detecting the known and potential specific degradation mechanisms applicable to the Byron Station, Unit 2, SGs. The inspection techniques, essential variables and equipment were qualified to Appendix H, "Performance Demonstration for Eddy Current Examination," of the EPRI PWR SG Examination Guidelines.

Subsequent to the most recent Byron Station, Unit 2, SG tube inspection, indications of cracking were reported based on the results from the nondestructive, eddy current

examination of the SG tubes during the fall 2004 outage at Catawba Nuclear Station, Unit 2, as described in NRC Information Notice 2005-09, "Indications in Thermally Treated Alloy 600 Steam Generator Tubes and Tube-to-Tubesheet Welds," dated April 7, 2005, (i.e., Reference 2). Tube indications were reported approximately seven inches from the top of the hot leg tubesheet in one tube, and just above the tube-to-tubesheet welds in a region of the tube known as the tack expansion in several other tubes. Finally, indications were also reported in the tube-end welds (TEWs), also known as tube-to-tubesheet welds, joining the tube to the tubesheet.

Catawba Nuclear Station, Unit 2, has Westinghouse designed Model D5 SGs similar to those in service at Byron Station, Unit 2. Model D5 SGs were fabricated with Alloy 600TT (i.e., thermally treated) tubes. Thus, there is a potential for tube indications similar to those reported at Catawba Nuclear Station, Unit 2, within the hot leg tubesheet region to be identified in the Byron Station, Unit 2, SGs if similar inspections were to be performed during the Refueling Outage 12 SG inspection.

Potential inspection plans for the tubes and the welds underwent intensive industry discussions in March 2005. The findings in the Catawba Nuclear Station, Unit 2, SG tubes present three distinct issues with regard to the SG tubes at Byron Station, Unit 2:

1) indications in internal bulges and overexpansions within the hot leg tubesheet;
2) indications at the elevation of the tack expansion transition; and
3) indications in the tube-to-tubesheet welds and propagation of these indications into the adjacent tube material.

In order to preclude unnecessarily plugging tubes in the Byron Station, Unit 2, SGs, an analysis was performed to identify the portion of the tube within the hot leg tubesheet necessary to maintain structural and leakage integrity for both normal operating and accident conditions. Tube inspections will be limited to identifying and repairing degradation in this portion of the tubes. The technical justification for the inspection and repair methodology is provided in Westinghouse Electric Company LTR-CDME-05-32-P, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 & Braidwood 2," Revision 1, dated May 2005 (i.e., Reference 1). The limited hot leg tubesheet inspection criteria were developed for the hot leg tubesheet region of Model D5 SGs considering the most stringent loads associated with plant operation, including transients and postulated accident conditions. The limited hot leg tubesheet inspection criteria were selected to prevent tube burst and axial separation due to axial pullout forces acting on the tube and to ensure that the steam line break (SLB) leakage limits are not exceeded. Reference 1 provides technical justification for allowing tubes with indications that are below 17 inches from the top of the hot leg tubesheet (i.e., within approximately four inches of the tube end) to remain in-service.

Constraint provided by the hot leg tubesheet precludes tube burst for cracks within the tubesheet. The criteria for tube burst described in Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines," Revision 1 dated January 2001 (i.e., Reference 3), and NRC Regulatory Guide (RG) 1.121, "Bases for Plugging Degraded PWR Steam Generator Tubes," dated August 1976 (i.e., Reference 4), are satisfied due to the constraint provided by the tubesheet. Through application of the limited hot leg tubesheet inspection scope described herein, the existing operating leakage limit provides

assurance that excessive leakage (i.e., greater than accident analysis assumptions) will not occur during a postulated SLB event.

Implementation of this proposed methodology involves limited inspection of the tubes within the hot leg tubesheet to depths of 17 inches from the top of the tubesheet using specialized rotating eddy current probes. The limited tubesheet inspection length of tubing must be demonstrated to be non-degraded below the top of the tubesheet interface. If cracks are found within the top of hot leg tubesheet to 17 inches below the top of tubesheet, the tube must be repaired or removed from service.

4.0 TECHNICAL ANALYSIS

A technical justification has been developed to identify the safety significant portion of the tube within the tubesheet. This justification (i.e., Reference 1) has been reviewed and approved in accordance with the requirements of Exelon Generation Company, LLC (EGC) procedures and is provided as Attachment 7. The safety significant portion of the tube is the length of tube that is engaged in the tubesheet from the secondary face that is required to maintain structural and leakage integrity over the full range of steam generator operating conditions, including the most limiting accident conditions. The evaluation determined that degradation in tubing below the safety significant portion of the tube does not require repair and serves as the basis for the tubesheet inspection program.

The bases for determining the safety significant portion of the tube within the tubesheet is based upon analyses and testing programs that quantified the tube-to-tubesheet radial contact pressure for bounding plant conditions as described in Reference 1. The tube-to-tubesheet radial contact pressure provides resistance to tube pull-out and resistance to leakage during plant operation and transients. Temperature effects and upward bending of the tubesheet due to primary and secondary differential pressure during normal and transient conditions, result in the tube-to-tubesheet contact pressure increasing with distance from the top of the tubesheet. Due to these effects, the tubesheet bore tends to dilate near the top of the tubesheet and constricts the tube near the bottom of the tubesheet. Testing and analyses have shown that tube-to-tubesheet engagement lengths of approximately three inches to 8.6 inches were sufficient to maintain structural integrity (i.e., resist tube pull-out resulting from loading considering differential pressures of three times the normal operating pressure difference and considering differential pressures of 1.4 times the limiting accident pressure difference). The variation of the required engagement length is a function of the radial tube location within the tube bundle. EGC has decided to add additional conservatism to the minimum structural distances of three inches to 8.6 inches by performing inspections to depths of 17 inches below the top of the hot leg tubesheet. The increase in contact pressure at this depth significantly increases the tube structural strength and resistance to leakage.

Since the proposed 17-inch tube inspection depth traverses below the mid-plane of the hot leg tubesheet, the tube-to-tubesheet contact pressure significantly aids in restricting primary-to-secondary leakage as differential pressure increases. Based on engineering judgment, given that there is no significant primary-to-secondary leakage during normal operation, there will be no significant leakage during postulated accident conditions from indications located below the mid-plane of the tubesheet (i.e., greater than approximately

10.5 inches below the top of the tubesheet). The rationale for this conclusion based on engineering judgment is the interaction of temperature and tubesheet bending effects that increase the contact pressure between the tube and the tubesheet, thereby increasing the resistance to primary-to-secondary leakage during normal operating or accident conditions.

Primary-to-secondary leakage from tube degradation in the tubesheet area during the limiting accident (i.e., SLB) is limited by flow restrictions resulting from the crack and tube-to-tubesheet contact pressures that provide a restricted leakage path above the indications and also limit the degree of potential crack face opening as compared to free span indications. The primary-to-secondary leak rate during postulated SLB accident conditions would be expected to be less than that during normal operation for indications near the bottom of the tubesheet (i.e., including indications in the tube end welds). This conclusion is based on the observation that while the driving pressure causing leakage increases by approximately a factor of two, the flow resistance associated with an increase in the tube-to-tubesheet contact pressure, during a SLB, increases by up to approximately a factor of three. While such a leakage decrease is logically expected, the postulated accident leak rate could be conservatively bounded by twice the normal operating leak rate if the increase in contact pressure is ignored. Since normal operating leakage is limited to less than 0.104 gpm (150 gpd) per TS 3.4.13, "RCS Operational Leakage," the associated accident condition leak rate, assuming all leakage to be from lower tubesheet indications, would be bounded by approximately 0.2 gpm. This value is well within the assumed accident leakage rate of 0.5 gpm discussed in Byron/Braidwood Updated Final Safety Analysis Report, Table 15.1-3, "Parameters Used in Steam Line Break Analyses." Hence it is reasonable to omit any consideration of inspection of the tube, tube end weld, bulges/overexpansions or other anomalies below 17 inches from the top of the hot leg tubesheet.

The proposed inspection sampling length of 17 inches from the top of the hot leg tubesheet provides a high level of confidence that the structural and leakage criteria are maintained during normal operating and accident conditions.

Degradation found in the portion of the tube below 17 inches from the top of the hot leg does not require repair or plugging as described in Reference 1.

EGC will implement the following inspection requirements in each SG in order to use the limited hot leg tubesheet inspection methodology:

1. Perform a 20% minimum inspection of the hot leg side tubes using rotating pancake probe (RPC) technology from three inches above the top of the hot leg tubesheet to three inches below the top of the tubesheet. Expand to 100% of the affected SG in this region only if cracking is found that is not associated with a bulge or overexpansion as described below.
2. Perform a 20% minimum inspection of the hot leg side tubes using RPC technology from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet.

3. Perform a 20% minimum sample of the total population of bulges and overexpansions within the SG from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet.

   a. Bulge refers to a tube diameter deviation within the tubesheet of 18 volts or greater as measured by bobbin coil probe based on review of the previous cycle bobbin data; and

   b. Overexpansion refers to a tube diameter deviation within the tubesheet of 1.5 mils or greater as measured by bobbin coil probe based on review of the previous cycle bobbin data.

4. If cracking is found in the sample population of bulges or overexpansions, the inspection scope will be increased to 100% of the bulges and overexpansions population for the region from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet in the affected SG.

5. If cracking is reported at one or more tube locations not designated as either a top of the tubesheet expansion transition, a bulge or an overexpansion, an engineering evaluation will be performed. This evaluation will determine the cause for the signal, e.g., some other tube anomaly, in order to identify a critical area for the expansion of the inspection. This expanded inspection will be limited to the identified critical area within 17 inches from the top of the hot leg tubesheet.

EGC will implement the following repair/plugging criteria and acceptance criteria.

- Degradation below 17 inches from the top of hot leg tubesheet is acceptable.

- Degradation within 17 inches from the top of hot leg tubesheet must be plugged or repaired.

In addition, the following regulatory commitment has been made: during Refueling Outage 12 and the subsequent operating cycle, no SG tube sleeves that have a connecting joint below 17 inches from the top of the hot leg tubesheet will be installed.

In summary:

- Reference 1 notes that the structural integrity requirements of NEI 97-06, and RG 1.121, are met by sound tube engagement lengths ranging from approximately three to 8.6 inches from the top of the hot leg tubesheet. The region of the tube below those elevations, including the tube-to-tubesheet weld, is not needed for structural integrity during normal operation or accident conditions. EGC will, however, perform inspections to a depth of 17 inches from the top of the hot leg tubesheet.

- NEI 97-06 defines the tube as extending from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, but specifically excludes the tube-to-tubesheet weld from the definition of the tube.

- The welds were originally designed and analyzed as the primary pressure boundary in accordance with the requirements of Section III of the 1971 edition of the American Society of Mechanical Engineers (ASME) Code, Summer 1972 Addenda and selected paragraphs of the Winter 1974 Addenda for the Byron Station, Unit 2, SGs. This proposed license amendment request, in effect, redefines the primary pressure boundary from the tube end weld to 17 inches below the top of the hot leg tube sheet.
- Section XI of the ASME Code deals with the in-service inspection of nuclear power plant components. The ASME Code (i.e., Editions 1971 through 2004) specifically recognizes that the SG tubes are under the purview of the NRC through the implementation of the requirements of the TS as part of the plant operating license.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

In support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

Overview

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) is requesting an amendment to Appendix A, Technical Specifications (TS), of Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2, respectively.

The proposed one time change would revise TS 5.5.9, "Steam Generator (SG) Tube Surveillance Program," to incorporate changes in the SG inspection scope for Byron Station, Unit 2, during Refueling Outage 12 and the subsequent operating cycle. The proposed changes are applicable to Unit 2 only for inspections during Refueling Outage 12 and for the subsequent operating cycle. The proposed changes modify the inspection requirements for portions of SG tubes within the hot leg tubesheet region of the SGs. The license for Byron Station, Unit 1, is affected only due to the fact that Unit 1 and Unit 2 use common Technical Specifications.

EGC has evaluated whether or not a significant hazards consideration is involved with the proposed TS changes by focusing on the three criteria set forth in 10 CFR 50.92 as discussed below:

Criteria

1. **Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

   Response: No.

   The previously analyzed accidents are initiated by the failure of plant structures, systems, or components. The proposed changes that alter the SG inspection criteria do not have a detrimental impact on the integrity of any plant structure, system, or component that initiates an analyzed event. The proposed changes will not alter the operation of, or otherwise increase the failure probability of any plant equipment that initiates an analyzed accident. Therefore, the proposed change does not involve a significant increase in the probability of an accident previously evaluated.

   Of the applicable accidents previously evaluated, the limiting transients with consideration to the proposed changes to the SG tube inspection criteria, are the SG tube rupture (SGTR) event and the steam line break (SLB) accident.

   During the SGTR event, the required structural integrity margins of the SG tubes will be maintained by the presence of the SG tubesheet. SG tubes are hydraulically expanded in the tubesheet area. Tube rupture in tubes with cracks in the tubesheet is precluded by the constraint provided by the tubesheet. This constraint results from the hydraulic expansion process, thermal expansion mismatch between the tube and tubesheet and from the differential pressure between the primary and secondary side. Based on this design, the structural margins against burst, discussed in Regulatory Guide (RG) 1.121, "Bases for Plugging Degraded PWR SG Tubes," are maintained for both normal and postulated accident conditions.

   The proposed changes do not affect other systems, structures, components or operational features. Therefore, the proposed changes result in no significant increase in the probability of the occurrence of a SGTR accident.

   At normal operating pressures, leakage from primary water stress corrosion cracking (PWSCC) below the proposed limited inspection depth is limited by both the tube-to-tubesheet crevice and the limited crack opening permitted by the tubesheet constraint. Consequently, negligible normal operating leakage is expected from cracks within the tubesheet region. The consequences of an SGTR event are affected by the primary-to-secondary leakage flow during the event. Primary-to-secondary leakage flow through a postulated broken tube is not affected by the proposed change since the tubesheet enhances the tube integrity in the region of the hydraulic expansion by precluding tube deformation beyond its initial hydraulically expanded outside diameter.

   The probability of a SLB is unaffected by the potential failure of a SG tube as this failure is not an initiator for a SLB.

The consequences of a SLB are also not significantly affected by the proposed changes. During a SLB accident, the reduction in pressure above the tubesheet on the shell side of the SG creates an axially uniformly distributed load on the tubesheet due to the reactor coolant system pressure on the underside of the tubesheet. The resulting bending action constrains the tubes in the tubesheet thereby restricting primary-to-secondary leakage below the midplane.

Primary-to-secondary leakage from tube degradation in the tubesheet area during the limiting accident (i.e., SLB) is limited by flow restrictions resulting from the crack and tube-to-tubesheet contact pressures that provide a restricted leakage path above the indications and also limit the degree of potential crack face opening as compared to free span indications. The primary-to-secondary leak rate during postulated SLB accident conditions would be expected to be less than that during normal operation for indications near the bottom of the tubesheet (i.e., including indications in the tube end welds). This conclusion is based on the observation that while the driving pressure causing leakage increases by approximately a factor of two, the flow resistance associated with an increase in the tube-to-tubesheet contact pressure, during a SLB, increases by up to approximately a factor of three. While such a leakage decrease is logically expected, the postulated accident leak rate could be conservatively bounded by twice the normal operating leak rate if the increase in contact pressure is ignored. Since normal operating leakage is limited to less than 0.104 gpm (150 gpd) per TS 3.4.13, "RCS Operational Leakage," the associated accident condition leak rate, assuming all leakage to be from lower tubesheet indications, would be bounded by approximately 0.2 gpm. This value is well within the assumed accident leakage rate of 0.5 gpm discussed in Updated Final Safety Analysis Table 15.1-3, "Parameters Used in Steam Line Break Analyses." Hence it is reasonable to omit any consideration of inspection of the tube, tube end weld, bulges/overexpansions or other anomalies below 17 inches from the top of the hot leg tubesheet. Therefore, the consequences of a SLB accident remain unaffected.

Based on the above discussion, the proposed changes do not involve an increase in the consequences of an accident previously evaluated.

2. **Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed changes do not involve the use or installation of new equipment and the currently installed equipment will not be operated in a new or different manner. No new or different system interactions are created and no new processes are introduced. The proposed changes will not introduce any new failure mechanisms, malfunctions, or accident initiators not already considered in the design and licensing bases.

Based on this evaluation, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed changes maintain the required structural margins of the SG tubes for both normal and accident conditions. Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines," Revision 1 and Regulatory Guide (RG) 1.121, "Bases for Plugging Degraded PWR Steam Generator Tubes," are used as the bases in the development of the limited hot leg tubesheet inspection depth methodology for determining that SG tube integrity considerations are maintained within acceptable limits. RG 1.121 describes a method acceptable to the NRC for meeting General Design Criteria (GDC) 14, "Reactor coolant pressure boundary," GDC 15, "Reactor coolant system design," GDC 31, "Fracture prevention of reactor coolant pressure boundary," and GDC 32, "Inspection of reactor coolant pressure boundary," by reducing the probability and consequences of a SGTR. RG 1.121 concludes that by determining the limiting safe conditions for tube wall degradation the probability and consequences of a SGTR are reduced. This RG uses safety factors on loads for tube burst that are consistent with the requirements of Section III of the American Society of Mechanical Engineers (ASME) Code.

For axially oriented cracking located within the tubesheet, tube burst is precluded due to the presence of the tubesheet. For circumferentially oriented cracking, Westinghouse letter LTR-CDME-05-32-P, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron Unit 2 and Braidwood Unit 2," Revision 1, dated May 2005, defines a length of degradation free expanded tubing that provides the necessary resistance to tube pullout due to the pressure induced forces, with applicable safety factors applied. Application of the limited hot leg tubesheet inspection depth criteria will preclude unacceptable primary-to-secondary leakage during all plant conditions. The methodology for determining leakage provides for large margins between calculated and actual leakage values in the proposed limited hot leg tubesheet inspection depth criteria.

Therefore, the proposed changes do not involve a significant hazards consideration under the criteria set forth in 10 CFR 50.92(c).

5.2 Applicable Regulatory Requirements Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include technical specifications (TS) as part of the license. The Commission's regulatory requirements related to the content of the TS are contained in Title 10, Code of Federal Regulations (10 CFR), Section 50.36, "Technical specifications." The TS requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) limiting conditions for operation (LCO), (3) surveillance requirements, (4) design features, and (5) administrative controls. The SG tube inspection requirements are included in the TS in accordance with 10 CFR 50.36(c)(5), "Limiting Conditions for Operation."

As stated in 10 CFR 50.59, "Changes, tests, and experiments," paragraph (c)(1)(i), a licensee is required to submit a license amendment pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," if a change to the TS is required.

Furthermore, the requirements of 10 CFR 50.59 necessitate that the NRC approve the TS changes before the TS changes are implemented. EGC's submittal meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.

RG 1.121 margins against burst are maintained for both normal and postulated accident conditions due to the constraint provided by the tubesheet.

NRC Information Notice 2005-09, "Indications in Thermally Treated Alloy 600 Steam Generator Tubes and Tube-to-Tubesheet Welds," dated April 7, 2005, provides additional regulatory insight regarding SG tube degradation.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for protection against radiation," or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in paragraph (c)(9) of 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review." Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. Westinghouse Electric Company LTR-CDME-05-32-P, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron Unit 2 and Byron Unit 2," Revision 1, dated May 2005

2. NRC Information Notice 2005-09, "Indications in Thermally Treated Alloy 600 Steam Generator Tubes and Tube-to-Tubesheet Welds," dated April 7, 2005

3. NEI 97-06, "Steam Generator Program Guidelines," Revision 1, dated January 2001

4. Regulatory Guide 1.121, "Bases for Plugging Degraded PWR Steam Generator Tubes," dated August 1976

Attachment 2

BYRON STATION
UNITS 1 AND 2

Docket Nos. 50-454 and 50-455

License Nos. NPF-37 and NPF-66

Request for License Amendment Related to Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program"

Markup of Technical Specifications Pages

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5.5-13
5.5-14

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

4. A random sample of ≥ 20% of the total number of laser welded sleeves and ≥ 20% of the total number of Tungsten Inert Gas (TIG) welded sleeves installed shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection exceeding the repair limit is detected, an additional 20% of the unsampled sleeves shall be inspected and if an imperfection exceeding the repair limit is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve, the tube at the heat treated area, and the tube-to-sleeve joints. The inservice inspection for the sleeves is required on all types of sleeves installed in the SGs to demonstrate acceptable structural integrity ; and

c. Inspection Results Classification

The results of each sample inspection shall be classified into one of the following three categories:

----------NOTE----------
Previously degraded tubes or sleeves must exhibit significant (> 10% of wall thickness) further wall penetrations to be included in the percentage calculations.

Category	Inspection Results
C-1	< 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but ≤ 1% of the total tubes inspected are defective, or ≥ 5% and ≤ 10% of the total tubes inspected are degraded tubes.
C-3	> 10% of the total tubes inspected are degraded tubes or > 1% of the inspected tubes are defective.

5. For Unit 2 during Refueling Outage 12, a 20% minimum sample of all inservice tubes from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be inspected by rotating probe. This sample shall include a 20% minimum sample of the total population of bulges and overexpansions within the SG from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet.

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

e. Acceptance Criteria

1. Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy current testing indications < 20% of the nominal tube or sleeve wall thickness, if detectable, may be considered as imperfections;

2. Degradation means a service induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve;

3. Degraded Tube means a tube or sleeve containing unrepaired imperfections ≥ 20% of the nominal tube or sleeve wall thickness caused by degradation;

4. % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation;

5. Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing an unrepaired defect is defective;

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or repaired by sleeving in the affected area. The plugging or repair limit imperfection depth for the tubing is equal to 40% of the nominal wall thickness. The plugging limit imperfection depth for laser welded sleeves is equal to 38.7% of the nominal wall thickness. The plugging limit imperfection depth for TIG welded sleeves is equal to 32% of the nominal wall thickness;

7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an OBE, LOCA, or a steam line or feedwater line break as specified in Specification 5.5.9.d.4;

For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, this definition does not apply to degradation identified in the portion of the tube below 17 inches from the top of the hot leg tubesheet. Degradation found in the portion of the tube below 17 inches from the top of the hot leg tubesheet does not require plugging or repair.

For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, degradation identified in the portion of the tube from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be plugged or repaired upon detection;

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

8. Tube Inspection means an inspection of the SG tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection shall include the sleeved portion of the tube.

9. Preservice Inspection means an inspection of the full length of each tube in each SG performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial MODE 1 operation using the equipment and techniques expected to be used during subsequent inservice inspections;

10. Tube Repair refers to a process that reestablishes tube serviceability. Acceptable tube repairs will be performed by the following processes:

    i. Laser welded sleeving as described in a Westinghouse Technical Report and subject to the limitations and restrictions as approved by the NRC, or

    ii. TIG welded sleeving as described in ABB Combustion Engineering Inc., Technical Reports: Licensing Report CEN-621-P, Revision 00, "Commonwealth Edison Byron and Braidwood Unit 1 and 2 Steam Generators Tube Repair Using Leak Tight Sleeves, FINAL REPORT," April 1995; and Licensing Report CEN-627-P, Operating Performance of the ABB CENO Steam Generator Tube Sleeve for Use at Commonwealth Edison Byron and Braidwood Units 1 and 2," January 1996; subject to the limitations and restrictions as noted by the NRC Staff.

    Tube repair includes the removal of plugs that were previously installed as a corrective or preventative measure. A tube inspection per Specification 5.5.9.e.8 is required prior to returning previously plugged tubes to service; and

For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, the portion of the tube below 17 inches from the top of the hot leg tubesheet is excluded;

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

11. The SG shall be determined OPERABLE after completing the corresponding actions (plug or repair in the affected area all tubes exceeding the plugging or repair limit) required by Table 5.5.9-2; and

5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser inleakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

12. For Unit 2 during Refueling Outage 12 and the subsequent operating cycle:

Bulge refers to a tube diameter deviation within the tubesheet of 18 volts or greater as measured by bobbin coil probe; and

Overexpansion refers to a tube diameter deviation within the tubesheet of 1.5 mils or greater as measured by bobbin coil probe.

Attachment 3

BYRON STATION
UNITS 1 AND 2

Docket Nos. 50-454 and 50-455

License Nos. NPF-37 and NPF-66

Request for License Amendment Related to Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program"

Typed Technical Specifications Pages

5.5-9
5.5-12
5.5-13
5.5-14

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

4. A random sample of ≥ 20% of the total number of laser welded sleeves and ≥ 20% of the total number of Tungsten Inert Gas (TIG) welded sleeves installed shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection exceeding the repair limit is detected, an additional 20% of the unsampled sleeves shall be inspected and if an imperfection exceeding the repair limit is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve, the tube at the heat treated area, and the tube-to-sleeve joints. The inservice inspection for the sleeves is required on all types of sleeves installed in the SGs to demonstrate acceptable structural integrity;

5. For Unit 2 during Refueling Outage 12, a 20% minimum sample of all inservice tubes from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be inspected by rotating probe. This sample shall include a 20% minimum sample of the total population of bulges and overexpansions within the SG from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet.

c. Inspection Results Classification

The results of each sample inspection shall be classified into one of the following three categories:

----------NOTE----------
Previously degraded tubes or sleeves must exhibit significant (> 10% of wall thickness) further wall penetrations to be included in the percentage calculations.

Category	Inspection Results
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C-3	> 10% of the total tubes inspected are degraded tubes or > 1% of the inspected tubes are defective.

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

e. Acceptance Criteria

1. Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy current testing indications < 20% of the nominal tube or sleeve wall thickness, if detectable, may be considered as imperfections;

2. Degradation means a service induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve;

3. Degraded Tube means a tube or sleeve containing unrepaired imperfections ≥ 20% of the nominal tube or sleeve wall thickness caused by degradation;

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5. Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing an unrepaired defect is defective;

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or repaired by sleeving in the affected area. The plugging or repair limit imperfection depth for the tubing is equal to 40% of the nominal wall thickness. The plugging limit imperfection depth for laser welded sleeves is equal to 38.7% of the nominal wall thickness. The plugging limit imperfection depth for TIG welded sleeves is equal to 32% of the nominal wall thickness.

For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, this definition does not apply to degradation identified in the portion of the tube below 17 inches from the top of the hot leg tubesheet. Degradation found in the portion of the tube below 17 inches from the top of the hot leg tubesheet does not require plugging or repair.

For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, degradation identified in the portion of the tube from the top of the hot leg tubesheet to 17 inches below the top of the tubesheet shall be plugged or repaired upon detection;

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an OBE, LOCA, or a steam line or feedwater line break as specified in Specification 5.5.9.d.4;

8. Tube Inspection means an inspection of the SG tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection shall include the sleeved portion of the tube.

   For Unit 2 during Refueling Outage 12 and the subsequent operating cycle, the portion of the tube below 17 inches from the top of the hot leg tubesheet is excluded;

9. Preservice Inspection means an inspection of the full length of each tube in each SG performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial MODE 1 operation using the equipment and techniques expected to be used during subsequent inservice inspections;

10. Tube Repair refers to a process that reestablishes tube serviceability. Acceptable tube repairs will be performed by the following processes:

    i. Laser welded sleeving as described in a Westinghouse Technical Report and subject to the limitations and restrictions as approved by the NRC, or

    ii. TIG welded sleeving as described in ABB Combustion Engineering Inc., Technical Reports: Licensing Report CEN-621-P, Revision 00, "Commonwealth Edison Byron and Braidwood Unit 1 and 2 Steam Generators Tube Repair Using Leak Tight Sleeves, FINAL REPORT," April 1995; and Licensing Report CEN-627-P, Operating Performance of the ABB CENO Steam Generator Tube Sleeve for Use at Commonwealth Edison Byron and Braidwood Units 1 and 2," January 1996; subject to the limitations and restrictions as noted by the NRC Staff.

5.5 Programs and Manuals

5.5.9 Steam Generator (SG) Tube Surveillance Program (continued)

Tube repair includes the removal of plugs that were previously installed as a corrective or preventative measure. A tube inspection per Specification 5.5.9.e.8 is required prior to returning previously plugged tubes to service;

11. The SG shall be determined OPERABLE after completing the corresponding actions (plug or repair in the affected area all tubes exceeding the plugging or repair limit) required by Table 5.5.9-2; and

12. For Unit 2 during Refueling Outage 12 and the subsequent operating cycle:

Bulge refers to a tube diameter deviation within the tubesheet of 18 volts or greater as measured by bobbin coil probe; and

Overexpansion refers to a tube diameter deviation within the tubesheet of 1.5 mils or greater as measured by bobbin coil probe.

5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser inleakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

Attachment 4

BYRON STATION
UNITS 1 AND 2

Docket Nos. 50-454 and 50-455

License Nos. NPF-37 and NPF-66

Request for License Amendment Related to Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program"

List of Commitments

List of Commitments

The following table identifies those actions committed to by Exelon in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

Commitment	Scheduled Completion Date
During Byron Station, Unit 2, Refueling Outage 12 and the subsequent operating cycle, no SG tube sleeves that have a connecting joint below 17 inches from the top of the hot leg tubesheet will be installed.	Upon Implementation

Attachment 5

BYRON STATION
UNITS 1 AND 2

Docket Nos. 50-454 and 50-455

License Nos. NPF-37 and NPF-66

Request for License Amendment Related to Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program"

Westinghouse Application for Withholding and Affidavit

Westinghouse

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Our ref: CAW-05-1992

May 9, 2005

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-CDME-05-32-P, Rev. 1, "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet At Byron 2 and Braidwood 2"(Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-05-1992 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Exelon Generation Company, LLC.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-05-1992, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: B. Benney, NRC
L. Feizollahi, NRC

CAW-05-1992

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed
before me this 11th day
of May, 2005

Sharon L. Fiori
Notary Public

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

(1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in LTR-CDME-05-32-P, Rev. 1 , "Limited Inspection of the Steam Generator Tube Portion Within the Tubesheet at Byron 2 and Braidwood Unit 2," (Proprietary) dated May 2005. The information is provided in support of a submittal to the Commission, being transmitted by Exelon Generation Co., LLC and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted for use by Westinghouse for Byron Unit 2 is expected to be applicable to other licensee submittals in support of implementing a limited inspection of the tube joint with a rotating probe within the tubesheet region of the steam generators.

This information is part of that which will enable Westinghouse to:

(a) Provide documentation of the analyses, methods, and testing for the implementation of the limited inspection length of the steam generator tube joint.

(b) Provide a primary-to-secondary side leakage evaluation for Byron Unit 2 during all plant conditions.

(c) Assist the customer to respond to NRC requests for information.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.

(b) Westinghouse can sell support and defense of this information to its customers in the licensing process.

(c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar licensing support documentation and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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